



## *PhD course in Mediterranean Agricultural, Food and Forest Systems (SAAFM)*

### **Seminar April 2<sup>nd</sup> 2021**

#### **The impact of inorganic fertilizers and pesticides on soil health – environmental issues of industrial agriculture**

Although fertilizers are used in agriculture to replenish soil nutrients the excessive use of inorganic industrial fertilizers in industrial agriculture results in biological, chemical and physical soil degradation such as loss of soil-biodiversity, nitrogen leaching, soil compaction, reduction in soil organic matter, and loss of soil carbon. Similarly, the use of pesticides due their xenobiotics characteristics may adversely affect beneficial, particularly nitrogen-fixing and phosphorus-solubilizing soil microorganisms and essential symbionts. Supporters of industrial agriculture based on heavy use of agrochemicals ferociously oppose the introduction of organic agriculture as economically non viable production structures created by green idealists. However, the only way forward for healthy agro-ecosystems with healthy soils is a multi scale precision organic agriculture based on reuse of natural resources and the introduction of circular agro-economies, a compromise between permaculture and large-scale agricultural production. In a long term, there is no contradiction between profitability and sustainable use of ecosystem services in *multifunctional* agriculture, where soil nutrition, pest management, agroforestry, irrigation, core products, augmented and ancillary products and services, wastewater and solid waste management, renewable energy systems and regional/rural planning are treated in one integrated system.

#### *Speaker*

#### **Sándor Némethy**

Sándor Némethy is Associate Professor at the Department of Conservation, University of Gothenburg, Sweden and Chief Scientist at the Faculty of Natural Sciences, University of Pécs, Hungary. He has four degrees: biology (with additional specialization in agricultural toxicology), marine geology, environmental science and Post Graduate Diploma in Strategic Management, PhD in marine geology and habilitation in Earth Sciences (Earth System Science). His research covers a wide range of topics in landscape conservation, management of ecosystem services, aquatic ecosystems, rural planning, renewable energy systems and climate change. Sándor Némethy is teaching at several European universities, a wide range of subjects, including genetics and biotechnology, biochemistry, agricultural microbiology, landscape conservation, soil science, Earth System Science, historical geology, paleo climatology, geo-chronology, environmental remediation technologies (mainly phyto-remediation), waste management, wine geography, oenotourism, agrotourism. Language skills: mother tongue: Hungarian; other languages: English, Swedish, Polish, Italian.

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The seminar will be held on April 2<sup>nd</sup> via Microsoft Teams from 3 PM to 4 PM at the following link:  
<https://teams.microsoft.com/l/channel/19%3af4f35972fa424f338de51b12591d7585%40thread.tacv2/March%25205th%2520-%2520Columba?groupId=d5893b88-db47-4831-a8c2-b0a3d09ae7ac&tenantId=bf17c3fc-3ccd-4f1e-8546-88fa851bad99>